Theme Area:	Environmental Resources
Program Area:	Upper Colorado Region
Project No.:	ER00.17
Project Title:	Effect of Periodic High Flow Levels on Regulated River Floodplain Soil Chemistry, Plant Nutrient Availability, and Cottonwood Growth
Principal Investigator:	Douglas C. Andersen, e-mail: dandersen@do.usbr.gov
Co-Principal Investigators:	S. Mark Nelson and Dan Binkley

Abstract: Ecological functions associated with riparian zones, such as nutrient cycling and water storage, may be detrimentally affected by the changes in sediment dynamics and hydrology associated with river regulation. These can, in turn, affect both primary and secondary productivity through effects on vegetation growth and development. This study will focus on how changes in nutrient processing and transformation in floodplain environments downstream of a dam may affect growth of Fremont cottonwood, a major component of riparian ecosystems throughout the Colorado Basin. We will compare cottonwood litter production and decomposition rates and soil nutrient concentrations in stands along alluvial segments of a regulated and unregulated river in an effort to assess how nutrient cycling affects cottonwood establishment and growth. Carbon and nitrogen budgets derived from the data may show important differences caused by river regulation in the functioning of riparian wildlife habitats.